

REMARKS

Claims 1-8 are pending in the application. Claims 1-7 have been amended with new claim 8 being added to the application.

Examiner Interview

Applicant's representative wishes to thank the Examiner for the Interview in this case which took place on February 10, 2005. As discussed in the Interview the claims have been amended in this amendment consistent with those presented in the interview.

Objection to the Drawings

The drawings are objected to under 37 CFR 1.83(a). Specifically, the Examiner asserts that the predetermined clearance and its connection with the probe and the reinforcement member is not shown in the figures. These features are recited in claim 5.

Claim 5 finds support in Figure 5(b) and page 13, paragraph 48 of the specification. The specification indicates that a clearance is provided between a surface on the other side of the probe (220) from the top thereof and the sheet member (210). A reinforcing member (230) such as an elastomer with an elasticity higher than the probe (220) may be interposed in the clearance.

Therefore, since claim 5 is illustrated in Figure 5(b) the Examiner's grounds of rejection is respectfully traversed. Therefore, withdrawal of the objection to the drawings is respectfully requested.

Objections to the Claims

Claim 5 is objected to because of minor informalities. The Examiner asserts that there is no structural connection and functional relation among the predetermined clearance, the probe and the reinforcement member.

Taking the Examiner's comments into consideration claim 5 has been amendment. Therefore, withdrawal of the objection to claim 5 is respectfully requested.

Claim Rejections under 35 USC §102

Claims 1-3 and 6-7 are rejected under 35 USC §102(b) as being anticipated by Hasegawa ('448).

The present invention is a probe sheet that includes a base plate (100) mounted to a prober of the instrument and a probe sheet (200) mounted to a lower surface of the base plate (100). The probe sheet (200) includes a flexible sheet member (210) and a number of probes (220) provided on one surface of the sheet member (210). The probe (220) has a shape capable of elastic deformation in a direction, upward or downward. As indicated in Figures 4(a) through 4(f) the probe (220) may take a number of shapes. Further, as indicated in Figures 5(a) and 5(b) the probe (220) may be reinforced by a reinforcing member (230) made of alumina with an elasticity higher than the probe (220).

Hasegawa describes an electrical connection apparatus (10) including a lattice (12), a probe sheet (14) fitted to one surface of the lattice (12), a number of wires 16 extending upward

from the probe sheet (14) and a number of elastic members (18) made of a rubber plate and arranged in the lattice (12). Probe region (38) which includes a number of probe elements (42) are adhered to the lower surface of the lattice (12). The probe elements (42) are able to deform such that any height difference may be absorbed by the deformation.

As recited in newly added claim 8 and amended claim 1, plural measurement probes aligned on a surface of a sheet member can elastically deform in vertical directions when respectively contacting with each of plural electrodes aligned on a surface of a measurement objective in order to accommodate dispersion in height of electrodes of the measurement objective, while a part or all of said sheet member can elastically deform by a force acting thereon through the respective measurement probes and thereby is displaced in vertical directions in order to accommodate inclination and/or warp of the measurement objective in whole. In other words, the present invention adopts a combination of elastic deformation of the probes and elastic deformation of the flexible sheet member to cope with dispersion in height of the electrodes of the measurement objective as well as inclination and/or warp of the measurement objective in whole.

Upon review of the cited reference to Hasegawa, it is noted in col. 9, lines 21-30, as pointed out by the Examiner, that a probe sheet comprising elastic members (18) and plural probe elements (42) are provided on one surface of the elastic member (18). However, the probe unit of Hasegawa has a configuration wherein the plural probe elements are provided by forming slits (44 and 46) in a film (32), while each elastic member (18) includes slits (48) communicating with the slits (44 and 46) and each isolated portion of the elastic member acts as a reaction body of each probe element

(42). (See col. 7, lines 31-63 and col. 9, lines 21-30). As long as each divided portion of the elastic member is configured for independent elastic deformation, the elastic member may accommodate dispersion in height of electrodes of a measurement objective but cannot accommodate inclination and/or warp of the measurement objective itself.

Further, the Examiner alleges the elastic member (18) is a sheet member but it is not correct. The member (18) is actually in the form of a plate, as disclosed in col. 7, line 55 of the description. In this respect, the present invention also differs from the cited reference.

Most importantly, the Hasegawa apparatus includes a plurality of support member (20) disposed on the upper surface of the elastic member (18) to prevent the elastic member (18) from being excessively deformed (see col. 9, lines 31-37). Column 9, lines 31-34 of Hasegawa states

“When the projection electrode 40 is pressed on the electrode of the IC chip, the support member 20 works to prevent the elastic member 18 from being excessively deformed.” (Emphasis Added)

In contrast, the present invention pursues positive use of elastic deformation of the sheet member in addition to the probes in such a configuration as discussed above. Therefore, the present invention has a totally different concept from the cited reference. Simply put, the prior art fails to disclose both the sheet member and the probes being deformable.

Therefore, claims 1 and newly added claim 8 patentably distinguish over the prior art relied upon by reciting, as exemplified by claim 8,

“A probe sheet unit comprising: a sheet member with a flexibility; and plural measurement probes provided on one surface of the sheet member, wherein the plural measurement probes are arranged on said surface of the sheet member and elastically deformable in vertical directions by respectively contacting with a plurality of

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electrodes arranged on a surface of a measurement objective and said sheet member in part or in whole is elastically deformable by a force acting thereon through the respective measurement probes and thereby is capable of vertical displacement.
(Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1-3 and 6-7 under 35 USC §102(b) as being anticipated by Hasegawa ('448) is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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